CLAIMS

What is claimed is:

1. A method for routing traffic from a source to a routing destination in a network where a plurality of routes are available, comprising:

assigning a cost to each of said routes and selecting the route with the lowest cost as defined by a cost function.

2. A method as recited in claim 1, further comprising:

propagating the selected route to a router.

3. A method as recited in claim 2, further comprising:

causing the router to route traffic from said source to said routing destination over said selected route.

4. A method as recited in claim 1, wherein said cost is a function of a path characteristic over the route to which said cost is assigned.

5. A method as recited in claim 4, wherein said path characteristic is selected from the group consisting of latency, packet loss, headroom, price, path length, Route-Change, and BGP reachability.

6. A method as recited in claim 4, further comprising determining the location of said routing destination and inferring said path characteristic based on measurement of said path characteristic associated with sending traffic from said source to another destination over said available routes.

7. A method as recited in claim 6, wherein the location of said routing destination is determined by a circular intersection method comprising:

measuring the time that it takes for traffic to move from a plurality of source locations to said routing destination;

converting said times to distance equivalents;

forming a plurality of intersecting circles using said distance equivalents as the radius of circles with said source locations as the center; and

determining the physical location of said routing destination from the intersection of said circles.

8. A method as recited in claim 4, further comprising inferring said path characteristic by determining a weighted average of said path characteristic from said source to other destinations based on physical proximity of said other destinations said routing destination.

9. A method as recited in claim 1, further comprising:

measuring latency between said source and a plurality of other destinations;

determining physical distances between said routing destination and said other destinations;

computing a weighted average of said latency measurements as a function of said distances; and

using said weighted average as an estimate of the latency between said source and said routing destination.

10. A method for routing traffic from a source to a routing destination in a network where a plurality of routes are available, comprising:

for each available route, obtaining a measurement of a path characteristic associated with routing traffic from said source to said routing destination;

using a cost function, assigning a cost to each available route as a function of the path characteristic associated with said route;

minimizing said cost function over said available routes; and

routing said traffic according to the lowest cost route determined by minimizing said cost function.

11. A method as recited in claim 10, further comprising:

propagating said lowest cost route to a router.

12. A method as recited in claim 11, further comprising:

causing the router to route traffic from said source to said routing destination over said lowest cost route.

13. A method as recited in claim 10, wherein said path characteristic is selected from the group consisting of latency, packet loss, headroom, price, path length, Route-Change, and BGP reachability.

14. A method as recited in claim 10, further comprising determining the location of said routing destination and inferring said path characteristic based on measurement of said path characteristic associated with sending traffic from said source to another destination over said available routes.

15. A method as recited in claim 14, wherein the location of said routing destination is determined by a circular intersection method comprising:

measuring the time that it takes for traffic to move from a plurality of source locations to said routing destination;

converting said times to distance equivalents;

forming a plurality of intersecting circles using said distance equivalents as the radius of circles with said source locations as the center; and

determining the physical location of said routing destination from the intersection of said circles.

16. A method as recited in claim 10, further comprising inferring said path characteristic by determining a weighted average of said path characteristic from said source to other destinations based on physical proximity of said other destinations said routing destination.

17. A method as recited in claim 10, further comprising:

measuring latency between said source and a plurality of other destinations;

determining physical distances between said routing destination and said other destinations;

computing a weighted average of said latency measurements as a function of said distances; and

using said weighted average as an estimate of the latency between said source and said routing destination.

18. A method for routing traffic from a source to a routing destination in a network where a plurality of routes are available, comprising:

for each available route, obtaining a measurement of a path characteristic associated with routing traffic from said source to said routing destination;

using a cost function, assigning a cost to each available route as a function of the path characteristic associated with said route;

selecting the route with the lowest cost as defined by said cost function; and

routing said traffic according to the lowest cost route.

19. A method as recited in claim 18, further comprising:

propagating said lowest cost route to a router.

20. A method as recited in claim 19, further comprising:

causing the router to route traffic from said source to said routing destination over said lowest cost route.

21. A method as recited in claim 18, wherein said path characteristic is selected from the group consisting of latency, packet loss, headroom, price, path length, Route-Change, and BGP reachability.

22. A method as recited in claim 18, further comprising determining the location of said routing destination and inferring said path characteristic based on measurement of said path characteristic associated with sending traffic from said source to another destination over said available routes.

23. A method as recited in claim 22, wherein the location of said routing destination is determined by a circular intersection method comprising:

measuring the time that it takes for traffic to move from a plurality of source locations to said routing destination;

converting said times to distance equivalents;

forming a plurality of intersecting circles using said distance equivalents as the radius of circles with said source locations as the center; and

determining the physical location of said routing destination from the intersection of said circles.

24. A method as recited in claim 18, further comprising inferring said path characteristic by determining a weighted average of said path characteristic from said source to other destinations based on physical proximity of said other destinations said routing destination.

25. A method as recited in claim 18, further comprising:

measuring latency between said source and a plurality of other destinations;

determining physical distances between said routing destination and said other destinations;

computing a weighted average of said latency measurements as a function of said distances; and

using said weighted average as an estimate of the latency between said source and said routing destination.

26. A method for routing traffic from a source to a routing destination in a network where a plurality of routes are available, comprising:

for each available route, obtaining a measurement of a path characteristic associated with routing traffic from said source to said routing destination;

using a cost function, assigning a cost to each available route as a function of the path characteristic associated with said route;

minimizing said cost function over said routes and identifying a route with the lowest cost of routing said traffic as defined by said cost function; and

generating a routing table containing said lowest cost route.

27. A method as recited in claim 26, further comprising:

propagating the routing table to a router.

28. A method as recited in claim 27, further comprising:

causing the router to apply said routing table to said routes.

29. A method as recited in claim 26, wherein said path characteristic is selected from the group consisting of latency, packet loss, headroom, price, path length, Route-Change, and BGP reachability.

30. A method as recited in claim 26, further comprising determining the location of said routing destination and inferring said path characteristic based on measurement of said path characteristic associated with sending traffic from said source to another destination over said available routes.

31. A method as recited in claim 30, wherein the location of said routing destination is determined by a circular intersection method comprising:

measuring the time that it takes for traffic to move from a plurality of source locations to said routing destination;

converting said times to distance equivalents;

forming a plurality of intersecting circles using said distance equivalents as the radius of circles with said source locations as the center; and

determining the physical location of said routing destination from the intersection of said circles.

32. A method as recited in claim 26, further comprising inferring said path characteristic by determining a weighted average of said path characteristic from said

source to other destinations based on physical proximity of said other destinations said routing destination.

33. A method as recited in claim 26, further comprising:

measuring latency between said source and a plurality of other destinations;

determining physical distances between said routing destination and said other destinations;

computing a weighted average of said latency measurements as a function of said distances; and

using said weighted average as an estimate of the latency between said source and said routing destination.

34. A computer implemented system for routing traffic from a source to a routing destination in a network where a plurality of routes are available, comprising:

a computer system; and

programming associated with said computer system for assigning a cost to each of said routes and selecting the route with the lowest cost as defined by a cost function.

35. A system as recited in claim 34, further comprising programming associated with said computer system for propagating the selected route to a router.

36. A system as recited in claim 35, further comprising programming associated with said computer system for causing the router to route traffic from said source to said routing destination over said selected route.

37. A system as recited in claim 34, wherein said cost is a function of a path characteristic over the route to which said cost is assigned.

38. A system as recited in claim 37, wherein said path characteristic is selected from the group consisting of latency, packet loss, headroom, price, path length, Route-Change, and BGP reachability.

39. A system as recited in claim 37, further comprising programming associated with said computer system for determining the location of said routing destination and inferring said path characteristic based on measurement of said path characteristic associated with sending traffic from said source to another destination over said available routes.

40. A system as recited in claim 39, further comprising programming associated with said computer system for:

measuring the time that it takes for traffic to move from a plurality of source locations to said routing destination;

converting said times to distance equivalents;

forming a plurality of intersecting circles using said distance equivalents as the radius of circles with said source locations as the center; and

determining the physical location of said routing destination from the intersection of said circles.

41. A system as recited in claim 37, further comprising programming associated with said computer system for inferring said path characteristic by determining a weighted average of said path characteristic from said source to other destinations based on physical proximity of said other destinations said routing destination.

42. A system as recited in claim 34, further comprising programming associated with said computer system for:

measuring latency between said source and a plurality of other destinations;

determining physical distances between said routing destination and said other destinations;

computing a weighted average of said latency measurements as a function of said distances; and

using said weighted average as an estimate of the latency between said source and said routing destination.

43. A computer implemented system for routing traffic from a source to a routing destination in a network where a plurality of routes are available, comprising:

a computer system; and

programming associated with said computer system for

for each available route, obtaining a measurement of a path characteristic associated with routing traffic from said source to said routing destination;

using a cost function, assigning a cost to each available route as a function of the path characteristic associated with said route;

minimizing said cost function over said available routes; and

routing said traffic according to the lowest cost route determined by minimizing said cost function.

44. A system as recited in claim 43, further comprising programming associated with said computer system for propagating said lowest cost route to a router.

45. A system as recited in claim 44, further comprising programming associated with said computer system for causing the router to route traffic from said source to said routing destination over said lowest cost route.

46. A system as recited in claim 43, wherein said path characteristic is selected from the group consisting of latency, packet loss, headroom, price, path length, Route-Change, and BGP reachability.

47. A system as recited in claim 43, further comprising programming for determining the location of said routing destination and inferring said path characteristic based on measurement of said path characteristic associated with sending traffic from said source to another destination over said available routes.

48. A system as recited in claim 47, further comprising programming associated with said computer system for:

measuring the time that it takes for traffic to move from a plurality of source locations to said routing destination;

converting said times to distance equivalents;

forming a plurality of intersecting circles using said distance equivalents as the radius of circles with said source locations as the center; and

determining the physical location of said routing destination from the intersection of said circles.

49. A system as recited in claim 43, further comprising programming associated with said computer system for inferring said path characteristic by determining a weighted average of said path characteristic from said source to other destinations based on physical proximity of said other destinations said routing destination.

50. A system as recited in claim 43, further comprising programming associated with said computer system for:

measuring latency between said source and a plurality of other destinations;

determining physical distances between said routing destination and said other destinations;

computing a weighted average of said latency measurements as a function of said distances; and

using said weighted average as an estimate of the latency between said source and said routing destination.

51. A computer implemented system for routing traffic from a source to a routing destination in a network where a plurality of routes are available, comprising:

a computer system; and

programming associated with said computer system for

for each available route, obtaining a measurement of a path characteristic associated with routing traffic from said source to said routing destination;

using a cost function, assigning a cost to each available route as a function of the path characteristic associated with said route;

selecting the route with the lowest cost as defined by said cost function; and

routing said traffic according to the lowest cost route.

52. A system as recited in claim 51, further comprising programming associated with said computer system for propagating said lowest cost route to a router.

53. A system as recited in claim 52, further comprising programming associated with said computer system for causing the router to route traffic from said source to said routing destination over said lowest cost route.

54. A system as recited in claim 51, wherein said path characteristic is selected from the group consisting of latency, packet loss, headroom, price, path length, Route-Change, and BGP reachability.

55. A system as recited in claim 51, further comprising programming associated with said computer system for determining the location of said routing

destination and inferring said path characteristic based on measurement of said path characteristic associated with sending traffic from said source to another destination over said available routes.

56. A system as recited in claim 55, further comprising programming associated with said computer system for:

measuring the time that it takes for traffic to move from a plurality of source locations to said routing destination;

converting said times to distance equivalents;

forming a plurality of intersecting circles using said distance equivalents as the radius of circles with said source locations as the center; and

determining the physical location of said routing destination from the intersection of said circles.

57. A system as recited in claim 51, further comprising programming associated with said computer system for inferring said path characteristic by determining a weighted average of said path characteristic from said source to other destinations based on physical proximity of said other destinations said routing destination.

58. A system as recited in claim 51, further comprising programming associated with said computer system for:

measuring latency between said source and a plurality of other destinations;

determining physical distances between said routing destination and said other destinations;

computing a weighted average of said latency measurements as a function of said distances; and

using said weighted average as an estimate of the latency between said source and said routing destination.

59. A computer implemented system for routing traffic from a source to a routing destination in a network where a plurality of routes are available, comprising:

a computer; and

programming associated with said computer for

for each available route, obtaining a measurement of a path characteristic associated with routing traffic from said source to said routing destination;

using a cost function, assigning a cost to each available route as a function of the path characteristic associated with said route;

minimizing said cost function over said routes and identifying a route with the lowest cost of routing said traffic as defined by said cost function; and

generating a routing table containing said lowest cost route.

60. A system as recited in claim 59, further comprising programming associated with said computer system for propagating the routing table to a router.

61. A system as recited in claim 60, further comprising programming associated with said computer system for causing the router to apply said routing table to said routes.

62. A system as recited in claim 59, wherein said path characteristic is selected from the group consisting of latency, packet loss, headroom, price, path length, Route-Change, and BGP reachability.

63. A system as recited in claim 59, further comprising programming associated with said computer system for determining the location of said routing destination and inferring said path characteristic based on measurement of said path characteristic associated with sending traffic from said source to another destination over said available routes.

64. A system as recited in claim 63, further comprising programming associated with said computer system for:

measuring the time that it takes for traffic to move from a plurality of source locations to said routing destination;

converting said times to distance equivalents;

forming a plurality of intersecting circles using said distance equivalents as the radius of circles with said source locations as the center; and

determining the physical location of said routing destination from the intersection of said circles.

65. A system as recited in claim 59, further comprising programming associated with said computer system for inferring said path characteristic by determining a weighted average of said path characteristic from said source to other destinations based on physical proximity of said other destinations said routing destination.

66. A system as recited in claim 59, further comprising programming associated with said computer system for:

measuring latency between said source and a plurality of other destinations;

determining physical distances between said routing destination and said other

destinations;

computing a weighted average of said latency measurements as a function of said distances; and

using said weighted average as an estimate of the latency between said source and said routing destination.